REMARKS

This application has been carefully reviewed in light of the Office Action dated January 13, 2004. Claims 39, 42 and 45 have been amended. Applicant reserves the right to pursue the original claims and other claims in this and other applications. Applicant respectfully requests reconsideration of the above-referenced application in light of the foregoing amendments and following remarks.

Claims 39, 42 and 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art (Fig. 1B) in view of Maruyama. The rejection is respectfully traversed.

Applicant respectfully submits that a "thin sheet material having a thickness of from approximately 0.025 to 0.1 mm," as recited in claims 39, 42, and 45, is not taught or suggested by Applicant's prior art Fig. 1B. Indeed, the specification states that substrate 11 (Fig. 1A) is typically .35 mm and that substrate 31 and base substrate 32 (Fig. 1B) are .35 mm each. The Office Action even concedes that both Applicant's Admitted Prior Art and the Maruyama reference do not disclose a thickness in the range of 0.025 to 0.1 mm (Office Action, pg. 3).

Applicant's FIG. 1B discloses a conventional ball grid array package with two material layers that are each at least three times (0.35 mm) the thickness of Applicant's claimed thin sheet material. Applicant's claimed ranges do not overlap or fall within the ranges provided in the prior art. See M.P.E.P. § 2144.05. Accordingly, the prior art of record does not teach or suggest this claimed feature. Since neither cited reference discloses or suggests the claimed limitation , the subject matter of claims 39, 42 and 45 is allowable.

The Office Action further asserts that it would have been obvious to use a single thin material layer having a thickness of 0.025 to 0.1 mm. However, Applicant's Prior Art (FIG. 1B) teaches away from a support substrate that is 0.025 to 0.1 mm thick.

Applicant's 'Background of the Invention' discloses that "the thickness of substrate 31 and support substrate 32 is generally on the order of 0.35 mm each." (Applicant's specification, pg. 4, lines 20-21) (emphasis added). The ball grid array package illustrated in Applicant's Prior Art (FIG. 1B) does not teach a thin sheet material (support substrate 32) approximately 0.025 to 0.1 mm thick. Support substrate 32 is taught to be 0.35 mm thick, or at least three times the thickness of Applicant's claimed thin sheet material and cannot provide a low profile ball grid array package.

Applicant discloses that conventional "BGA packages 10, 30 [FIG. 1A and 1B] have several disadvantages . . . [the] height 54 of BGA package 30 is typically on the order of 0.9 to 1.46 mm." (Applicant's specification, pg. 5, lines 18-21) (emphasis added). Applicant's FIG. 1B does not illustrate a low profile ball grid array package and there is no motivation in FIG. 1B or Maruyama to make the support substrate 32 thinner than 0.35 mm.

Maruyama is relied upon for teaching a circuit module that contains a ball grid array package connected to a central processing unit and adds nothing to rectify the deficiencies associated with Applicant's Prior Art (FIG. 1B). Maruyama does not teach or suggest a thin sheet material that is approximately 0.025 to 0.1 mm thick. For at least the reasons provided above, independent claims 39, 42 and 45 are allowable.

Claims 40, 41, 43 and 44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art and Maruyama and further in view of Nakashima. The rejection is respectfully traversed.

Claims 40-41 depend from claim 39, and claims 43-44 depend from claim 42. Claims 40-41 and 43-44 contain every limitation of their base claims and should be allowable for at least the same reasons as for allowance of independent claims 39 and 42 as provided above. Specifically, Applicant's Prior Art (FIG. 1B) and Maruyama do not teach or suggest a "thin sheet material having a thickness of from approximately 0.025 to 0.1 mm," as recited in claims 39, 42, and 45. Nakashima is relied upon for disclosing a single

thin layer of material consisting of a metal or polyimide and adds nothing to rectify the deficiencies associated with Applicant's Prior Art (FIG. 1B) and Maruyama.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

By_____

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